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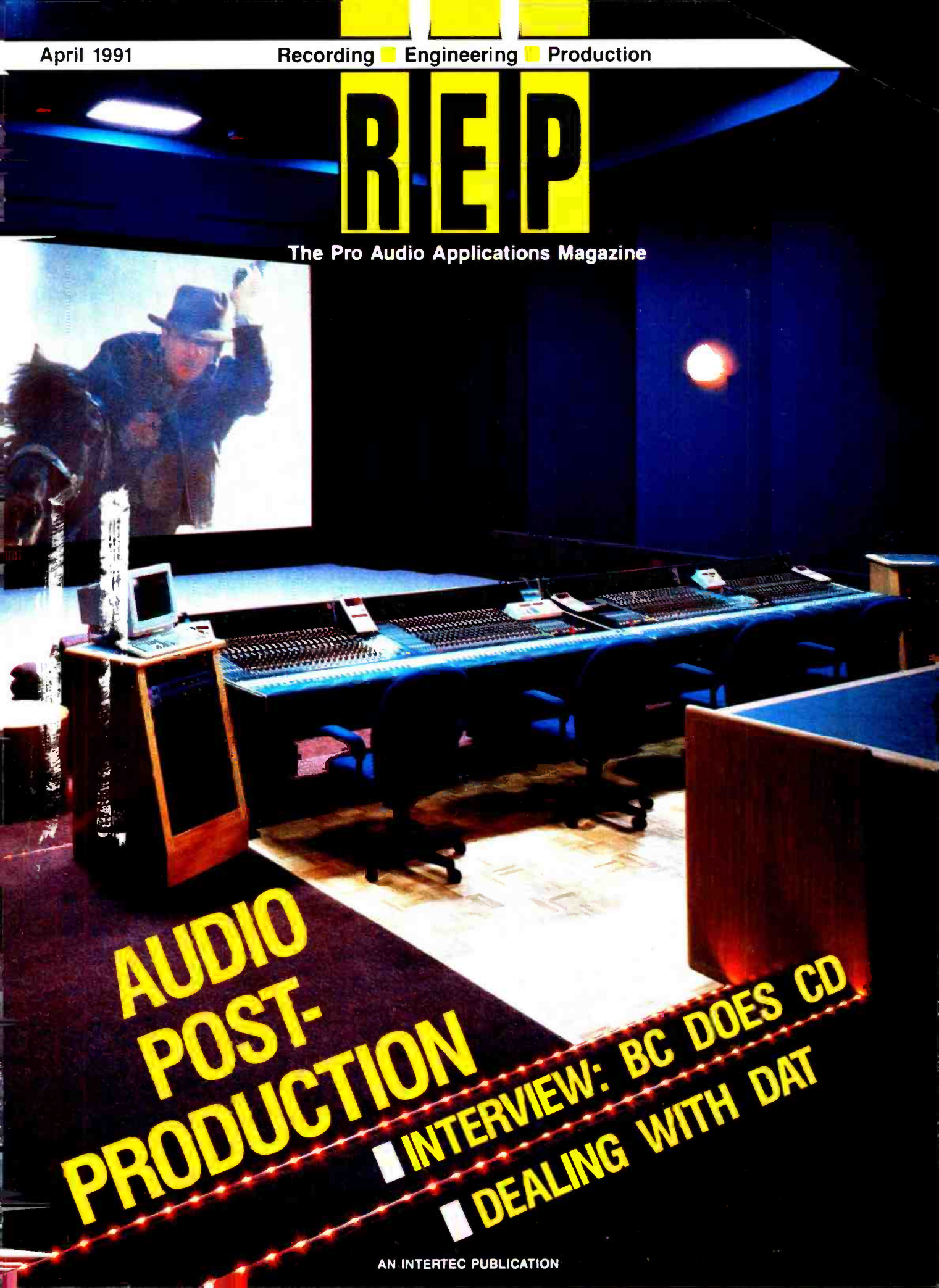

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Contents

Volume 22, No. 4

April 1991

12

26

32

Features

The R•E•P Interview: Bob Clearmountain 20
One of the industry's busiest tells all. *By: Ira Cord Rubnitz*

Modern Digital Broadcast Production 26
How ABC Watermark uses NED's Direct-to-Disk. *By: Tim Sadler*

NBC Goes SSL 32
Letterman's audio production facility gets a facelift. *By: Mary C. Gruszka*

DAT In The Real World: Part 1 38
Wonder why your DAT recordings won't copy? *By: Ron Streicher*

Five Questions: Data Digital 44
By: Mack Clark

Hands On: Mark of the Unicorn Video Time Piece 58
By: Paul D. Lehrman

Sound Reinforcement

Live & Direct 46
International Touring: The Global Challenge *By: David Scheirman*

Quality Theater Sound 48
A detailed look at A-1 Audio's "The Music of Andrew Lloyd Webber."
By: David Scheirman

Roadwork 54
By: Mark Herman

All Access 56
By: Mark Herman

Departments

From The Top 5
Letters 6
Random Access 8
Fresh Tracks 12
Sound Business 16
Digital Domain 18
First Look 63
Cutting Edge 64
Classified 72
Advertisers Index 80
Rapid facts Cards 81
Subscriber Cards 83

On the Cover: Skywalker Sound, Santa Monica, CA, featuring an Otari Premier console. Photo by Martin Lavadie.

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QUALITY THEATER SOUND

A detailed look at A-1 Audio's sound production for "The Music of Andrew Lloyd Webber," one of the year's most popular touring stage shows.

By David Scheirman

The Music of Andrew Lloyd Webber" was conceived as a showcase for the British composer's most popular songs and theater music. Lloyd Webber, a 39-year-old wunderkind, has received four Tony Awards, four Drama Desk Awards, three Grammys and three Larrys, the British equivalent of the Tony Award.

One of the most heralded popular composers of his generation, Lloyd Webber is the first to have three shows playing simultaneously in New York and London. Much of his music ranks high in the pop music world, including "I Don't Know How To Love Him," which originated in the score for "Jesus Christ Superstar" and became a million-seller for both Helen Reddy and Yvonne Elliman. Webber's "Memory" from "Cats" has already been interpreted by hundreds of singers.

Featuring selections from musicals like "Cats," "Phantom of the Opera," "Evita," "Jesus Christ Superstar" and "Starlight Express," this current show was first staged in England during 1988. Revised and expanded, a Canadian production premiered in Vancouver in May 1989. Throughout 1990, the American tour played to sell-out audiences in more than 30 cities. I observed the show at the National Theatre in Washington, DC, during the 1990 holiday season.

David Scheirman is R•E•P's live performance consulting editor and president of Concert Sound Consultants, Julian, CA.

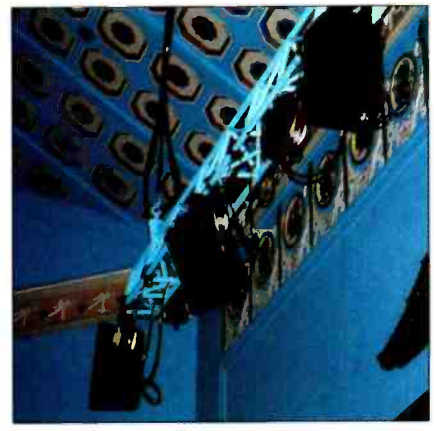


Figure 1. The center bridge truss, hung from the ceiling in front of the stage, holds three Meyer UPAs and three Tannoy 3859-R coaxial speaker units.

Figure 2. Compact Meyer UPM speaker units are used for both front-row fill speakers and for on-stage vocal ensemble foldback systems.

Although the show features a full symphony orchestra and an ensemble of 12 Broadway singers, it is difficult to categorize. Not a typical off-Broadway musical, a symphony event or a pop concert, the production requires the best in consistent, high-quality sound production. The show features a sound design by Martin Levan of England, who with his company (Martin Levan Sound Design) has been responsible since 1984 for designing the sound for almost all of the worldwide productions of Andrew Lloyd Webber's musicals (including "Cats," "Phantom of the Opera," "Aspects of Love," "Starlight Express," "Song & Dance" and "Requiem"). Assistant sound designer Graham Carmichael worked under Levan's supervision as project coordinator to implement this innovative system.

Soundmixer Lucas Corrubia Jr. was contracted to operate the specified sound system provided by A-1 Audio (Hollywood and Las Vegas). He has been working with the show since it opened in Canada last year.

"We did this show for six months on

weekends in Toronto," says Corrubia. "Now, there are 26 weeks of work in the U.S., from the fall of 1990 through April 1991. I've had great fun working with Martin Levan and Graham Carmichael on this project. The show sound design is Martin's, and it is up to me to interpret his design and follow specific guidelines to guarantee a certain quality level and consistency from venue to venue.

"We're using A-1 Audio as the sound shop — the hardware supplier where we put everything together. Their fabrication shop is tops. They are able to fulfill a variety of custom needs. For example, they made us a phantom power on/off interrupt switch for use on the acoustic guitar, so you don't hear the pop during soft passages each time the guitarist needs to pick it up, turn it on and play. A-1 also gives us excellent support while we are out on the road."

Corrubia, based in Atlantic City, got his start in live soundmixing in 1980 after moving out of the video production field. For several years, he worked as soundman at the Golden Nugget casino showroom.

"The Atlantic City scene was an excellent foundation to start from," says Corrubia. "It gave me a good start on basic skills, with live music and production shows, as I moved toward working with sophisticated international projects."

Assisted by technician Jim Good, Corrubia examines each particular venue and

Figure 3. The conductor's position is equipped with a private mini-monitor system using Anchor-powered speakers and an intercom control station.

decides how to best use the portable loudspeaker system components at his disposal.

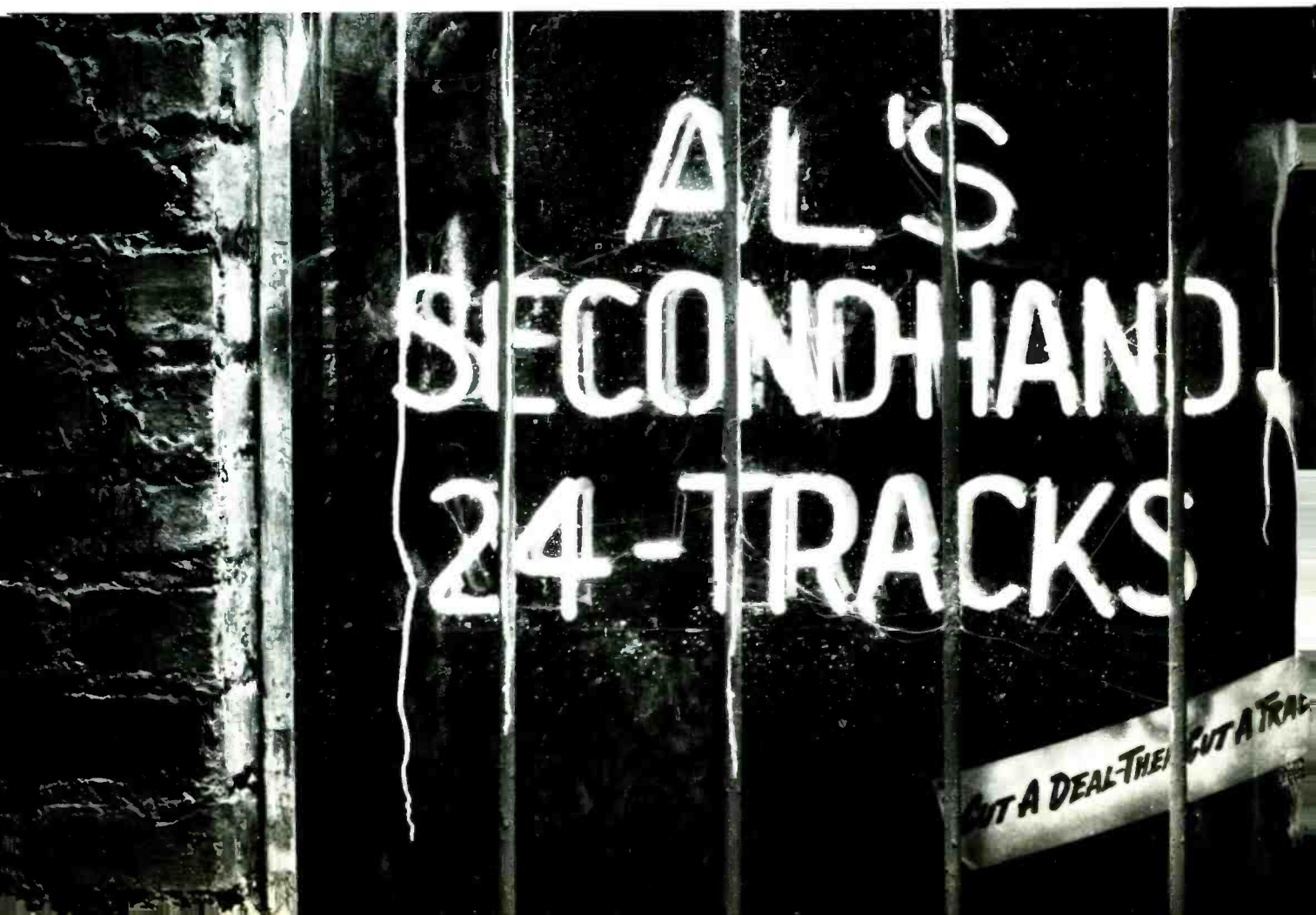
"Martin's design gives a very good center image for the sound of the show in a theater," he says. "That is pretty consistent, no matter what building we are in. Here at the National Theatre, we have a fairly typical deep balcony situation, with side loge boxes. My primary system structure includes left and right speaker placement with subwoofers at the bottom, an overhead center truss in the middle and an apron frontfill system for the forward rows."

SPEAKER SYSTEM LAYOUT

In the National Theatre, the sound team set up two Meyer UPAs and a Meyer 650-RS subwoofer on the lower level, with a single compact Meyer UPM on a higher shelf to cover the side balconies.

Although not visually overpowering, this compact system did a more than adequate job of tastefully filling the richly decorated historic theater with full-bandwidth program sound reinforcement. First constructed in 1835, the National Theatre is the third-oldest in America, and has hosted every U.S. President since its construction.

The center loudspeaker complement includes three widely spaced Meyer UPAs and three Tannoy 3859-R coaxial drivers.



"We typically will make use of an overhead bridge truss to hang these center speaker components," says Corrubia. "They can be adjusted with pipe brackets so that I can get the ideal coverage angle for different balconies in various rooms" (see Figure 1).

The Tannoys used in Martin Levan's sound design represent an unusual application of a loudspeaker component. A 15-inch diameter coaxial speaker, normally found in large-format studio reference monitors, the units are free-mounted without any boxed enclosure. Custom-configured Brooke-Siren Systems electronic crossovers, located at the power amp racks, are used to drive them.

The Tannoy speakers provide an open, breathy sound to the musical material, according to Corrubia.

"It's as if the theater room space is being used as the virtual enclosure. I think it gives a whole new dimension to the sound for this type of show, and it is particularly effective when you hear things like the pipe organ notes in the theme from "Phantom of the Opera."

The compact frontfill system includes up to eight Meyer UPM speaker enclosures, placed along the front edge of the stage. The number used varies, depending on the width of the stage area. The same type of unit, fitted with tilt brackets and fed with separate signals from an auxiliary mixing console bus, is used for the foldback system to serve the vocalists who work the front stage area (see Figure 2).

"In a show like this, having a supply of small, efficient, quality speaker units is a lot more important than having just a big pile of boxes," says Corrubia. "The levels that we work with are very tasteful, and very subtle things like speaker placement and EQ settings will make a big difference in what the listener perceives in the different seating areas. I'll use the Meyer UPMs whenever we need a small house fill-speaker for side balconies and that sort of thing. It's a close-field device, compared to larger things, but when integrated into the whole system it's a real problem-solver."

In larger venues, Corrubia sets up custom-built sound towers designed by Martin Levan. Each of these vertically oriented support structures holds one Meyer subwoofer, a Meyer MSL-3, a Bose 302, two Meyer UPAs and two Tannoy coaxials. Comprising a 16-foot post made of square steel tubing stock, the sound tower has a sturdy plywood base that will typically be secured to the floor with lag bolts. One is set on each side of the proscenium stage opening (see Figure 4).

Amplification for the loudspeaker systems is installed in custom-built electronics racks made by A-1 Audio. Dual-channel units from Crest Audio power the Meyer components, and Crown amps are available for various purposes. The Meyer control electronics units are also located in these amp racks.

MIXING EQUIPMENT

The show is set up to be run on a Yamaha PM-3000-40 mixing console. To accommodate the large number of instrument mic inputs for the 37-piece symphonic ensemble, a group of space-saving rack-mountable submixers is employed.

Four Yamaha MV802 8-input mixers, along with four Yamaha MLA-7 mic-line amplifiers, give a total of 32 additional phantom-powered mic inputs, convertible to line level signals. These are used for string, woodwind, brass and percussion subgrouping. Located in a rack beneath the main console, the submixers allow the assembly of a reasonably compact house mixing position. This is an important consideration in theater houses with fixed-row seating.

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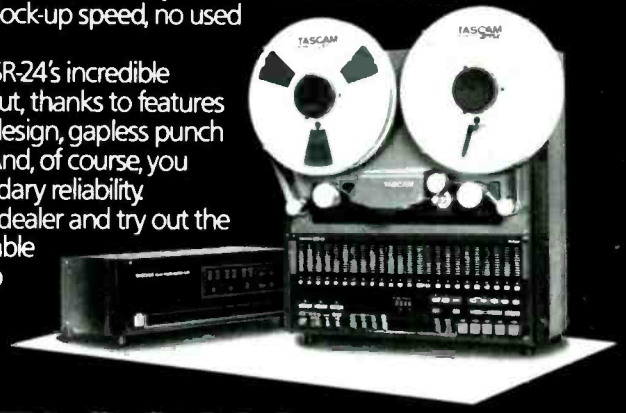

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house mixing position," says Corrubia. "There is really very little change from show to show on the monitor settings; the musicians are quite consistent, and the program is the same from night to night."

The speaker systems are set up to be controlled from the output matrix section of the PM-3000 console. Each output program mix is provided with one side of a Yamaha Q-2031 1/3-octave graphic equalizer; a total of 14 are available for both house and stage monitor mixes. Output mix capabilities include the house left and right towers, the center UPAs and Tannoys, the frontfill UPM group, the vocal ensemble foldback, the conductor's feed and the rhythm/brass foldback "hot spot" monitors. A click-track signal is fed to on-stage headphone amps for the percussionist and the conductor's mini-monitor system (Rane HC-6 and a Shure M-267 with AN-1000 Anchor-powered monitors), to ensure time-synchronization with special effects playback (see Figure 3).

Portions of the program (including crowd noises from the "Evita Suite," for example) are run from an Otari reel-to-reel tape deck. Two identical MR-5050 units are linked to run simultaneously; one is a spare that can be instantly online when a console-mounted A/B switch box is engaged.

White Model 4700 programmable equalizers are given pre-set and desired EQ curves for the Tannoy speaker system feeds. Yamaha DDL-3 digital delay units are employed for the left and right main orchestra mix feeds (enabling the signal delay of the left and right speakers in relation to the center array), and a pair of SPX-1000s are used for vocal and orchestral reverb units. Two dbx 166 compressor-limiters are group-inserted for the vocal ensemble.

"It's really an elegant system design," says Corrubia. "The tools are here to achieve a certain consistent sound, regardless of what size venue we take the show into; yet, everything is compact and neatly arranged so as to save as much space as we can. I have everything at my fingertips."

MICROPHONE PROVISIONS

Perhaps the most specialized part of the sound system rental equipment for this show is the microphone kit. It includes models from Neumann, Sennheiser, Beyer, AKG and Electro-Voice. Countryman Isomax mini-condensers are also used.

"The key to having a great reinforced symphony sound is being able to match your microphone type to the various instruments and sections," says Corrubia. "You need condenser mics for a lot of applications. You need units with built-in bass rolloff switches and pickup pattern selection. Martin Levan has put a lot of thought into the microphone needs of this production, and it shows. It gives me the ability to really reach for the different instruments as needed, to have them sparkle, and to get a really good blend."

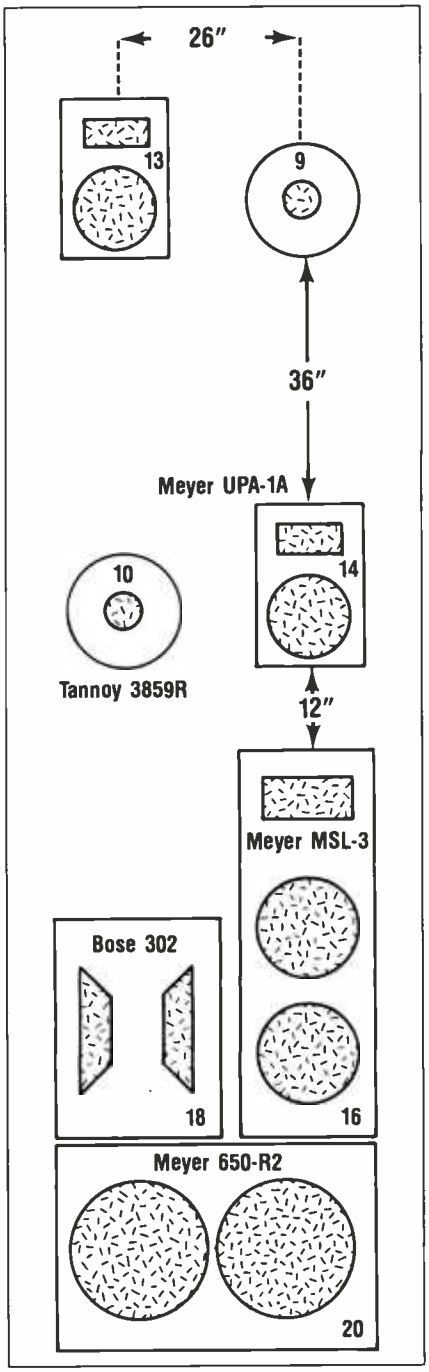

Figure 4. The tour's sound system resources include the sound tower, a 16-foot-high support used to raise spaker components on stage left and stage right.

For the high string sections (violin and viola), Countryman Isomax miniature clip-on condenser mics are fixed to the bridge post. Sennheiser MKH 40s are supplied for the celli and bass viol. The MKH 40s are also used for each flute, oboe, clarinet and bassoon player.

French horns are picked up with Sennheiser MD 409s, and Neumann U 89s are used for the trumpets. E-V RE-20s pick up the trombones. Each seated musician has a unique music stand that combines mic clip, lamp and sheet music holder in one sturdy, space-saving package.

The percussion set (including timpani, woodblocks, bells, etc.) is given five AKG C414s, while the trap kit uses an AKG D12 for kick, C451 for snare, and C414 for overhead. The piano is picked up with a Crown PZM, and the electric guitar amp is miked with a Sennheiser 409.

The male and female vocal solo mics are Beyer M88s, and Sennheiser hand-held wireless systems with 4031 condenser mic capsules are used by the vocal ensemble (15 R.F. systems are available).

"A-1 Audio used its computerized radio-frequency assignment system to set this rig up for us," says technician Jim Good. "We had to make sure that all of the RF systems were completely non-interactive. The Sennheiser system works really well for us, and we've had good results as we move from city to city. No problems at all, actually."

QUALITY AUDIO: A THEATER TREND?

One interesting note about this production is that the sound carries the evening; there are no lavish stage sets, no rich costumes, not even any dramatic story-weaving. It is musicians and singers presenting popular musical compositions. How well (or not) the theater patrons can hear influences how the show will be perceived by the critics and audience alike.

This show seems to be pleasing both. To quote one music reviewer: "From where I sat, the concert sounded great. It sounded just as good — not too loud, not too soft — from the extreme back of the house, where I sat after intermission. The orchestra has a rich, thoroughly professional sound."

"It's really more like a concert than anything else," says Corrubia. "These are theater patrons, people who are used to going to plays and to symphonic concerts; what they come to this show for is to enjoy some good music. So, we are fortunate that the producers have been aware of how important it is to get the sound of the show across."

"We are really enjoying the move toward greater audio sophistication for this type of musical show," says A-1 Audio owner Al Siniscal. "This production is a really good example of a project that lets everybody shine. We are very proud of it. The composer, the sound designer, the singers and musicians, the production staff and our sound system ... it all comes together quite nicely when things are done right like they are on this one." ■